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Saksenamyces kamalii gen. & sp. nov., from India

Jaishri Surywanshi[1*], Akhila Nand Rai[1], Paras Nath Singh[2]

[1] *Department of Botany, Dr. H.S. Gour Vishwavidyalaya, Sagar (M.P.), India, 470003*

[2] *National Fungal Culture Collection of India, Biodiversity and Palaeobiology Group, MACS Agharkar Research Institute, GG Agarkar Road, Pune 411004, India.*

[*] Correspondence to: *jaishri.surywanshi10@gmail.com*

Abstract—A new genus and species, *Saksenamyces kamalii*, is described and illustrated. The fungus is characterized by undifferentiated conidiophores and monoblastic, bulbous conidiogenous cells that bear obclavate, whip like, rostrate, multiseptate, brown conidia.

Key words—foliicolous, phragmospore, *Shorea robusta,* taxonomic novelty

Introduction

Our current study is based on the morphological identification of novel fungus collected from Balaghat, Madhya Pradesh, India. During frequent periodic surveys conducted at a study site lying at 21°37′00″–22°18′30″N 80°02′30″–52′03″E, we encountered a conspicuous superficial black moldy symptoms on living leaves of *Shorea robusta,* an important timber-yielding plant in central India (Chitale & Behera, 2012). A detailed examination of the hyphomycete sporulating on the moldy areas determined that the unidentified fungus represented a new genus and species, proposed here as *Saksenamyces kamalii*.

Materials & methods

Frequent surveys were conducted in the Balaghat North Forest Division (November 2014) of Madhya Pradesh, India. During one field trip, the infected leaves of *Shorea robusta* were collected and brought to the lab for observation. Samples were mounted in lactophenol cotton blue and examined microscopically using a Leica DMLB LB30T light microscope and a FEI NOVA NANO SEM-450 Scanning Electron Microscope. Fifty measurements each of conidia and conidiogenous cells were recorded. The

holotype specimen is deposited in Ajrekar Mycological Herbarium, Agharkar Research Institute, Pune, India (AMH); and an isotype in the collections of Rai Jaishri Mycology Herbarium, Dr. Hari Singh Gour University, Sagar, India (RJM).

Taxonomy

Saksenamyces Surywanshi, A.N. Rai, P.N. Singh, **gen. nov.**

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Differs from the genus *Pseudocercospora* by its bulbous, monoblastic conidiogenous cells.

Type species: *Saksenamyces kamalii* Surywanshi & al.

Etymology: The generic name honours and commemorates the services of the renowned, internationally acclaimed mycologist, the late Prof. S.B. Saksena from Sagar, M.P., India.

Conidiophores undifferentiated. Conidiogenous cells monoblastic, intercalary, bulbous to unequal subdoliiform, pale to olivaceous brown. Conidia solitary, obclavate, rostrate, phragmoseptate, sometimes unequally dichotomously branched, smooth, pale to olivaceous brown.

Saksenamyces kamalii Surywanshi, A.N. Rai, P.N. Singh, **sp. nov.** Figs 1–3

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Differs from *Pseudocercospora* species by its monoblastic, bulbous to unequal subdoliiform conidiogenous cells that are intercalary on undifferentiated conidiophores that resemble assimilative hyphae.

Type: On living leaves of *Shorea robusta* C.F. Gaertn. (*Dipterocarpaceae*) Baihar, North Balaghat Forest Division M.P., India, Nov. 2014 leg. J. Surywanshi, (**holotype**, AMH-9835; **isotype**, RJM 360).

Etymology: refers to name of the renowned Indian mycologist from Gorakhpur, Prof. Kamal.

Leaf infection amphigenous, predominantly hypogenous, superficial black moldy, irregular patches up to 1–17 mm in diameter. Colonies amphiphyllous predominantly hypophyllous, dark black, effuse, mycelium superficial, olivaceous brown, hyphae 1.5–4.5 µm thick, stromata present. Conidiophores undifferentiated, reduced into conidiogenous cells and resembling assimilative hyphae. Conidiogenous cells monoblastic, bulbous to unequal doliiform, thick-walled, intercalary, determinate, arising from the repent hyphae as a structure, pale to olivaceous brown, 6–19 × 4–9 µm. Conidia acrogenous, upright or prostrate, solitary, pale to olivaceous brown, long obclavate, whip-like, rostrate, straight to curved, occasionally unequally dichotomously branched, smooth, hila unthickened and stumpy, 1–24-phragmoseptate, 10–750 × 10.5–15 µm, 6–10 µm diam. at the base.

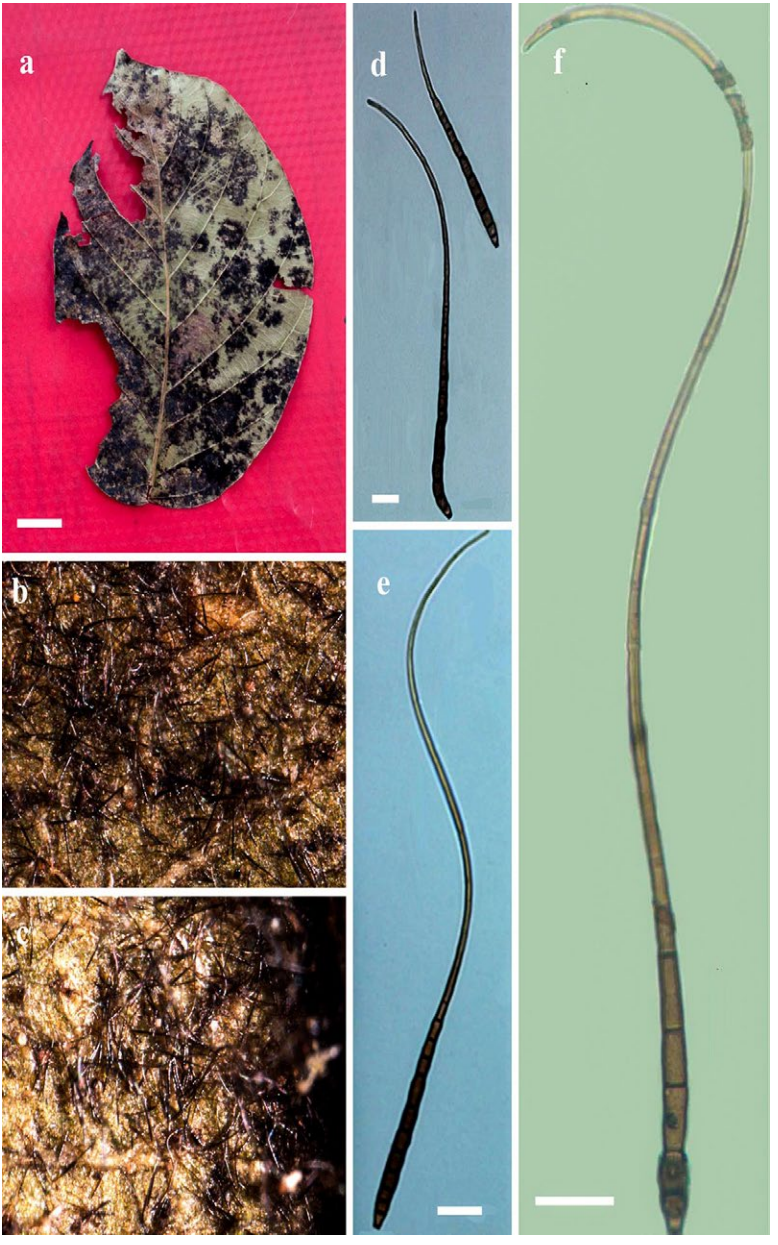

Fig. 1. *Saksenamyces kamalii* (holotype, AMH-9835). a. Lower leaf surface showing symptoms; b, c. Stereo microscope view of infected leaf showing numerous conidia; d–f. Rostrate and whip-like extremely long conidia. Scale bars: a = 2 cm; d–f = 20 μm.

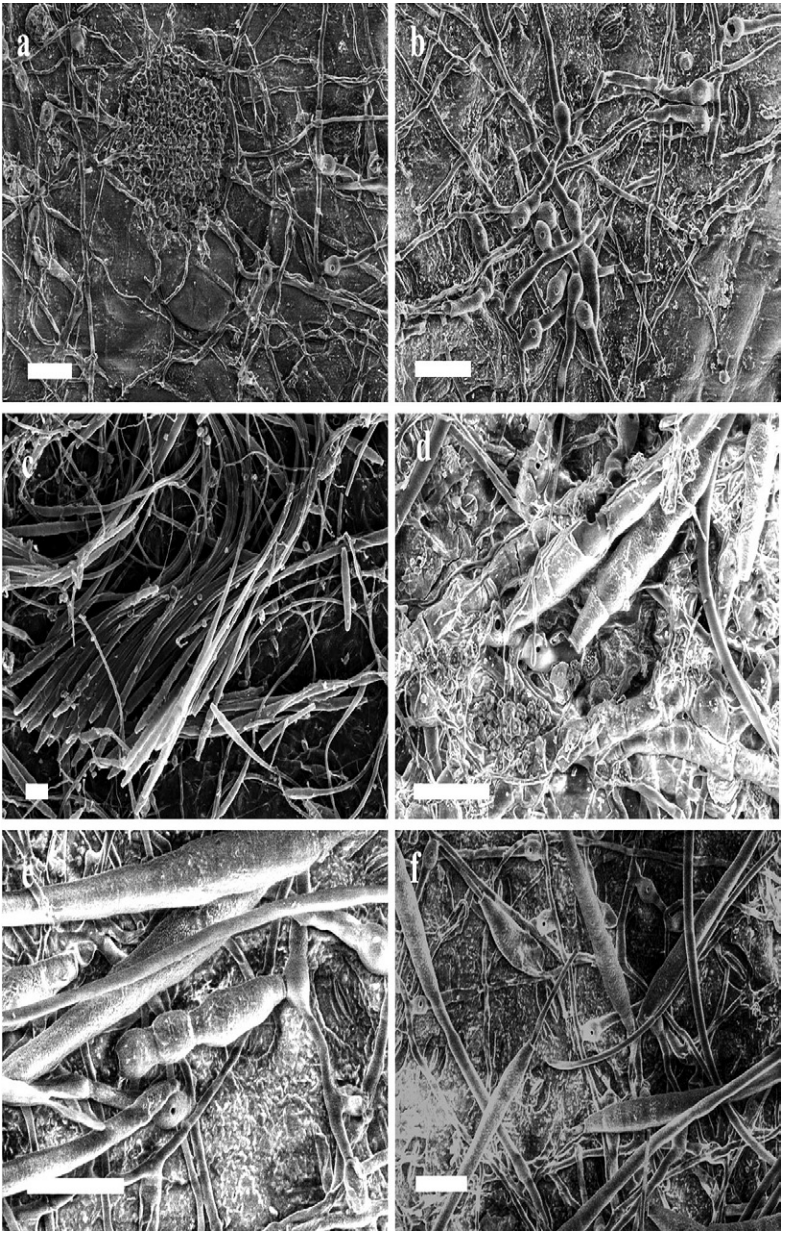

Fig. 2. *Saksenamyces kamalii* (holotype, AMH-9835). a. Mycelium arising from stroma; b. Host-fungus attachment; c. Bunch of conidia; d. Conidia showing conidiogenesis; e. Bulbous conidiogenous cell and attachment of conidium; f. Germinating conidia. Scale bars = 20 μm.

Fig. 3. *Saksenamyces kamalii* (holotype, AMH-9835). a. Stroma; b. Bulbous conidiogenous cells arising from non-differentiated conidiophore; c. Numerous conidia; d–e. Conidia straight to curved respectively; f–j. Conidia showing various types of germination. Scale bars: a–e = 20 μm; f–j = 10 μm.

Remarks—*Saksenamyces kamalii* exhibits significant differences from allied fungal genera such as *Pseudocercospora* Speg., *Annellophora* Hughes, and *Clasterosporium* Schwein. and bears excessively long rostra, sometimes helicosporous in nature. The lack of differentiation makes the conidiophores unique. Despite successive efforts, we were unable to isolate and culture this new fungus.

Discussion

Saksenamyces kamalii is distinct from any other genus in having monoblastic, bulbous or unequal doliiform conidiogenous cells producing enormous conidia from lateral side and apical, long obclavate long rostrate conidia with some conidia bearing dichotomously branched rostra. *Saksenamyces* is superficially similar to *Pseudocercospora, Annellophora,* and *Clasterosporium* in producing obclavate conidia (Ellis 1971), but the conidiophores of these genera are differentiated, macronematous and the conidiogenous cells are terminal and nearly cylindrical. *Bulbocatenospora* (Castañeda-Ruíz & al. 2000) and *Chuppia* (Deighton 1965) have intercalary conidiogenous cells somewhat similar to those of *Saksenamyces kamalii* but differ by producing dictyospores (Seifert & al. 2011).

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